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LITHOGRAPHIC ABSTRACTS, APRIL 1960

PHOTOGRAPHY, TONE & COLOR CORRECTION

HOW TO GET BETTER HALFTONE CONTRAST. Charles C. Ball. Graphic Arts Monthly 31, No. 12, December 1959, pp. 66, 68 (2 pages). Cures are offered for some of the troubles that cause halftones to lose their snap. Included are: good housekeeping to eliminate dust which can cause flare, clean lenses, no shiny surfaces in camera, improperly prepared developers, dirty or warped filters, uncoated lenses and clean screens.

APPLYING THE PHOTOGRAPHIC REVERSAL. Dick Arden. Graphic Arts Monthly, Vol. 31, No. 10, Oct. 1959, pp. 84, 86, 88, 90, 4 pages. Photographic reversal of lithographic film gives increased quality, economy, and saves time. Three methods are listed as: 1. Hydrogen peroxide and copper sulphate method. 2. Potassium bichromate and sulfuric acid method. 3. Autopositive films. The advantages of each of the first two are listed, formulas given and step-by-step manipulation procedures explained in some detail.

*EVALUATION OF THE QUALITY OF PRINTS. P. Fink. Ugra Bull. No. 5, July 1959, pp. 18-29 (in German); Printing Abstracts 14, No. 11, November 1959, pp. 860-861 (2). The evaluation of print quality is a very complex problem. It is therefore advisable to evaluate prints according to a number of different methods, since one can frequently obtain additional information by comparing the results obtained by different methods. Visual observation must still be considered as the most important method. In certain cases, however, it can be replaced by simple measurements, particularly when the variation in one quality factor only is to be followed. The worst disadvantage of visual evaluation is that the results are peculiar to the individual. In many cases, however, the individuality of this method is counteracted by the observer not ranking freely, sometimes even incorrectly. That is to say there is no real 'correct' solution, such as is obtainable e.g., in mathematics, with an individualistic method, but only at the most an average classification which not everyone would consider to be correct. The object of an attempt to develop a method of evaluating prints must be to provide an objective method free from individual error. There are two methods which can be adopted for this: the development of measuring techniques and the use, as far as possible, of mathematical methods for planning the investigation and of statistics. At the moment it is more likely that we shall be able to obtain an acceptable result rapidly and without too high an expenditure on apparatus by the second method. In using visual evaluation one must differentiate between a completely free print evaluation and one which is controlled. In a controlled evaluation, in an attempt to obtain a better correlation between the statements of the individual observers the evaluation is consciously limited, i.e., only certain quality characteristics are utilized and not the overall impression. Consequently the controlled visual evaluation represents a transition to measuring techniques in that in this case also certain factors only are taken into account and an overall impression formed from these.

THERMOPLASTIC RECORDING. W. E. Glenn. Journal of Applied Physics 30, No. 12, December 1959, pp. 1870 - 1873 (4 pages). A new method is described for recording electrical signals. Information is written at extremely high density by means of an electron beam on a film consisting of a low melting thermoplastic material. This can be projected as a full color image, or can be converted to an electrical signal. The tape, which is processed by quick heating, can be readily erased and reused. (This is related to Dr. Fishers' Eidophor System - Swiss)

1960 . . . YEAR OF REALITY FOR NEW COLOR SCANNERS. A.V. Hyatt Judson. Gravure 5, No. 12, December 1959, pp. 23-25 and 50-52 (6 pages), also found in The Graphic Arts Monthly 32, No. 1, January 1960, pp. 12,13,14,16,18,20 (6 pages). A preview of four new scanners coming to use in 1960 -- The Crosfield Scanatron (British); The Hell Colorgraph (German); the Hell Vario-Klischograph (German); and the Fairchild Scan-A-Color (U.S.A.). Also a review of two scanners already in use - the Time-Life Scanner and the Hunter-Penrose Autoscan. New color scanners in the research or development stage include the Belinograver in France and the Miehle Color Scanner in the U.S. Information on the characteristics of each form of scanner are given and some are illustrated. 4 illustrations.

THE PRINCIPLES OF FILMSETTING. Frank H. Smith. Perspective 1, No. 4, 1959, pp. 376-385 (10 pages). First some fundamentals of printing processes, and of type composition are reviewed and reasons for the entry of filmsetting into the picture are given briefly. The four principal forms of filmsetting machines are listed as the Photon, the Linofilm, the Fotosetter and the Monophoto. Line diagrams are used to illustrate the general principles of filmsetting, and to show how each of the four machines listed applies these principles.

*COLOR-CORRECTION SYSTEMS. U. S. Patent 2,902,539 - Application September 10, 1953. Louis Shapiro - Assigned to RCA. Official Gazette 746, No. 1, September 1, 1959, p. 220. In a system for obtaining color-corrected records from a subject having color characteristics wherein said subject is scanned in two transverse directions by means of a scanning light source to provide uncorrected electrical signals representative of color components of said subject, and a color-correction computer generates corrected electrical signals in accordance with said uncorrected signals, said color-correction computer being in control when signals generated thereby are within predetermined limits, the combination with said scanning light source and said computer of apparatus for testing color control of said computer comprising switch means responsive to signals generated by said computer for controlling the scan of said subject in one of said transverse directions, and for indicating the state of control of said computer.

*PHOTOGRAPHIC PRINTING METHOD AND APPARATUS. U. S. Patent 2,890,621 - Application September 24, 1954. Chauncey G. Suits - Assigned to General Electric Co., Inc. Official Gazette 743, No. 3, June 16, 1959, p. 563. The method of eliminating the effect of scratches on a photographic negative when projecting light there-through for the production of enlarged images which comprises positioning said negative in a transparent liquid polysiloxane having a refractive index within the limits of about 1.35 to 1.70 and projecting light through said negative and said polysiloxane.

GIVE THE STRIPPER A TRANSPARENT NEGATIVE!! Dick Arden. Graphic Arts Monthly 31, No. 12, December 1959, pp. 70, 72 (2 pages). Author points out the desirability of negatives with some visual transparency for registering and placement in the flat. Two procedures are given for converting negatives to an image color which is sufficiently transparent to the eye for the convenience of the stripper, yet completely opaque to the light that burns in the plate. One procedure uses Quicktone which gives a golden brown tone, the other uses Kodak Magenta Developer.

PLANOGRAPHIC PRINTING PROCESSES

DICHROMATED COLLOIDS. H. M. Cartwright. Process 66, No. 791, December 1959, pp. 385-386 (2 pages). This is a discussion of an as yet unpublished paper on this subject wherein certain relationships between chromates and dichromates of sodium, potassium and ammonium and their effects on several commonly used colloids are explored. Some conclusions are drawn on sensitivity and keeping properties, i.e. ammonium dichromate gives maximum sensitivity, sodium and potassium chromate lowest.

A SURVEY OF LITHOGRAPHIC PLATES. L. E. Lawson. The Lithographer and Offset Printer 56, No. 1, January 1960, pp. 13,14,15,16 (4 pages). A general discussion of the various types of lithographic plates which are used in England along with average press performance expectations and costs. Anodized aluminum, chemically copperized aluminum, zinc and bimetallic plates are evaluated. Albumen and casein surface images on aluminum and zinc are also considered as well as pre-sensitized aluminum and paper plates.
Also found in Process 66, No. 791, December 1959, pp. 386-389 (4 pages).

*MAGNETICALLY IMAGEABLE PLANOGRAPHIC PLATE. U. S. Patent 2,909,118 - Application January 5, 1956. Frank L. Wellcome, Jr. - Assigned to S. D. Warren Company, Inc. Official Gazette 747, No. 3, October 20, 1959, p. 610. A coated sheet suitable for both magnetic recording and planographic printing comprising a non-magnetic flexible base and a surface coating thereon, said coating being magnetizable and containing finely divided ferro-magnetic particles bound by a water-insoluble hydrophilic adhesive, said coating also containing zinc acetate sufficient to ensure satisfactory planographic printing qualities in the surface of said coating. A magnetic recording sheet having a planographic printing surface, said sheet comprising a non-magnetic flexible base, a lower coating thereon comprising a ferro-magnetic powder and an adhesive and an upper coating thereon comprising a light colored pigment and a hydrophilic adhesive.

MORE HELPFUL HINTS FOR THE STRIPPER. K. W. Beattie. Modern Lithography 26, No. 8, August 1958, pp. 34, 35, 36 (3 pages). Time saving tips include center mark on copy, duplicate negative or autopositive and low cost step and repeat plates.

*PROCESS OF BRIGHT DIPPING ZINC BASE ALLOYS. U. S. Patent 2,904,413 - Application June 23, 1954. Kenneth Raymond Hampel - Assigned to Jervis Corporation. Official Gazette 746, No. 3, September 15, 1959, p. 769. Method in imparting a bright surface finish to zinc alloys containing 80% and upwards of zinc which comprises immersing them for a short time in an aqueous solution having the following composition, by weight:

	Percent
Chromic anhydride (CrO_3)	6.5 to 20.0
Nitric acid (HNO_3)	2.7 to 15.0
Hydrofluoric acid (HF)	1.0 to 8.0

Water sufficient to make 100%.

*METHOD OF COATING A SUCCESSION OF ALUMINUM SURFACES. U. S. Patent 2,909,455 - Application September 24, 1958. Nelson J. Newhard, Jr., and David Y. Dollman - Assigned to Amchem Products. Official Gazette 747, No. 3, October 20, 1959, p. 701. In the art of coating a series of aluminum pieces wherein the surfaces thereof are treated successively with an aqueous acid bath the coating producing ingredients of which consist essentially of fluoride, hexavalent chromium, phosphate and hydrogen ions; the method of controlling the composition of the bath which comprises constantly withdrawing a portion of the bath, passing it through a cation exchange resin and returning it to the bath; maintaining the fluoride activity of the bath by periodically adding thereto at least 1 mol of sodium fluoride and 2 mols of potassium fluoride for each mol of aluminum dissolved in the bath; and maintaining the hexavalent chromium, the phosphate and the hydrogen ion content by suitable additions as may be required.

THE GEVACOPY ALUMINIUM OFFSET PROCESS. A. Rott and L. De Haes. The Journal of Photographic Science 8, No. 1, January/February 1960, pp. 26-32 (7 pages). A photographic process is described wherein silver images are produced by diffusion on to an aluminium surface, which images subsequently can be converted into offset-printing plates by a simple after-treatment. The mechanism of this image-formation is studied and interpreted as an electrolytic reduction of the non-exposed and non-developed

silver salts. The form and chemical properties of the silver precipitate formed, as well as the photographic quality of the images obtained, are discussed.

PAPER AND INK

FACTORS INFLUENCING DRYING. Anon. American Ink Maker 37, No. 7, July 1959, p. 40 (1 page). Abstract from USSR article as translated to German by I.G.T. Also appears in Printing Abstracts 14, No. 3, March 1959, p. 171. Concerns the determined amount of damping water in inks for various plates and the importance of such water in ink drying. The influence of the pH of damping water is also discussed.

*PRINT AND INK. R. Muller. Graphia, Bern, Vol. 37, No. 10, 1958, pages 266-79 (in German). Printing Abstracts, Vol. 14, No. 3, March 1959, page 173. The variation of R.H. over the year (in Switzerland) and its effect on the drying of printing inks; the cause of drying; the adjustment of correct drying and the action of different driers; investigations into the variation in drying time with the addition of synthetic resins and different R.H.'s; the acceleration of drying brought about by certain pigments and the adjustment of the inks for multicolour printing are discussed. In addition the consistency of inks and the changes in it rendered necessary by the type of machine, and the adjustment of ink properties by additions are discussed.

A FLOW EQUATION FOR PIGMENT-OIL SUSPENSIONS OF THE PRINTING INK TYPE. N. Casson. The British Ink Maker 2, No. 1, November 1959, pp. 14-22 (9 pages). As a result of mutual attraction, it is considered that the particles in a flocculated suspension form chain-like groups, the dimensions of which control the viscosity of the suspension. When the latter flows, the groups are subjected to disruptive stresses, the magnitude of which depend on the rate of shear and the size of a group. Consequently the equilibrium group size, and hence the viscosity, varies with the rate of shear. A quantitative expression of this variation is obtained in the form of an equation relating the shear stress F to the rate of shear D by considering the magnitude of the interparticle forces and disruptive stresses. The relation has the form

$$F^{1/2} = k_0 + k_1 D^{1/2}$$

k_0 and k_1 being constants the values of which depend on the properties of the solid and liquid phases of a suspension. Suspensions made by dispersing different pigments in thin lithographic varnish were measured on the Ferranti-Shirley cone and plate viscometer. In each case the relation between F and D obtained was that predicted by the theoretical equation. The results are shown to be in reasonably good quantitative agreement with the theory. This indicates that the suspensions are very similar to the theoretical model, allowing the effects of pigment particle size and shape on the flow properties to be predicted. (12 references - 6 graphs)

PAPER FOR WEB OFFSET. Kenneth L. Wallace. Graphic Arts Monthly, Vol. 31, No. 10, Oct. 1959, pp. 66, 68, 70, 72, 90, 5 pages. From a talk given before the 53rd Annual Convention of the Lithographers and Printers National Association. Web offset is cited for its rapid growth and potential, in magazine, newspaper, encyclopedia, directory, catalogs, mailers, etc. The high paper consumption is mentioned. Certain requirements are listed as follows: 1. Strength; 2. Water resistance; 3. Freedom from loose surface dust, lint, loose fibers, etc.; 4. More critical roll conditions; 5. More difficult ink-paper relationships. Paper basis weights, costs, and a look to the future are discussed.

THINKING ABOUT INKING. Lee Wright. British Ink Maker, Vol. 1, No. 4, Aug. 1959, pp. 16-8, 3 pages. A discussion of the inking system of the lithographic press as exemplified in the Mann press, for which the author is chief designer. Copper plating

of steel rollers gave inconsistent results. Vibrator mechanisms are discussed and illustrated.

*PROBLEMS IN SMOOTHNESS TESTING. E. Bayer. Papier, Darmstadt, Vol. 13, No. 5/6, Mar. 1959, pp. 85-92, 8 pages (in German). From Printing Abstr., Vol. 14, No. 5, May 1959, Abstr. 1667. In the first part the significance of smoothness is emphasized as an important surface property of materials and products of the paper and paperboard manufacturing and processing industry, particularly in printing. After an exact definition of the smoothness value its evaluation by measurement is discussed. Various instruments and methods used in smoothness testing (Bekk smoothness tester, examination under oblique light, the light sectioning microscope, the interferometer method and the Zehender variation of this, the Chapman smoothness tester and the use of a profilometer) are described.

*THE MEASUREMENT OF BRIGHTNESS, WITH PARTICULAR REFERENCE TO THE PHOTOVOLT SYSTEM. J. S. Burkitt. J. Austr. Pulp Pap. Ind., Vol. 12, No. 4, Jan. 1959, pp. 101-15, discussion 115-6, 17 pages. From Printing Abstr., Vol. 14, No. 5, May 1959, Abstr. 1668. In the measurement of brightness it is often found that two Photovolt Reflection meters will not give the same reading for paper, even when the same working standard is used with both instruments. Such correlation errors are found in any reflectometer using a working standard of material different from the test sample, and arise from many causes, the most important of which are explained in this paper. Some of these causes were tested by experiments, the results of which have led to some useful servicing precautions and a standardization procedure which may also be applied with advantage to other instruments used for measuring brightness.

*THE EFFECT OF THE GLOSS OF PAPERS ON PRINTING INKS. M. Hartmann. Druckspiegel, vol. 14, no. 7, July 1959, pp. 318-21 (in German); Printing Abstracts 14, No. 10, October 1959, Abs. #3361, p. 785. The factors affecting whiteness and gloss and methods of their measurement are discussed. The gloss and whiteness of approximately 40 papers are tabulated. The optical effect of every printed colour depends, among other factors, on the whiteness, evenness, smoothness, absorption capacity and degree of sizing of the paper.

*KNOWLEDGE OF PAPER FOR THE LITHOGRAPHER. Anon. Offset, vol. 14, no. 10, 16 May 1959, pp. 209-10(a); no. 11, 30 May 1959, pp. 233-4 (b); No. 12, 13 June 1959, pp. 257-8(c); No. 13, 27 June 1959, pp. 279-80(d) (in Dutch); Printing Abstracts 14, No. 10, October 1959, Abs. #3372, p. 788. (A) Some data are given on single- and double-sided coated paper, with and without a glossy surface, and also duplex and coated duplex. (B) Data are given on papers such as bible, manila and copy papers and a discussion of the difficulties of paper is begun. (C) Offset printing and some faults that arise in it, such as toning over all the plate and grey and smudged prints, are discussed. (D) Uneven ink absorption by the paper is discussed.

*COMPARATIVE PRINTING TESTS ON COATED ART AND MACHINE COATED PAPERS. K. A. Falter. Wochenbl. Pap.-Fabr., No. 8, 1959, pp. 305-21 (in German) (Guntter Staib Verlag, Biberach an der Riss, Wurttemberg, Germany); Printing Abstracts 14, No. 10, October 1959, Abs. #3385, p. 791. The following factors were investigated: smoothness, strength, compressibility, elasticity, pick resistance, damping expansion, curling, dusting, whiteness, gloss, opacity, pH, freedom from chemically active substances, the relation between paper and printing ink, ink transfer, time of penetration and drying time.

*THE RUB RESISTANCE OF OFFSET PRINTS. Anon. Roland Nachrichten, No. 12, May 1959, pp. 26-9 (in German); Printing Abstracts 14, No. 10, October 1959, Abs. # 3353, p. 784. Experience has shown that thoroughly dry and (nail) scratch resistant

prints are not always resistant to scuffing. The dry ink film should be resistant to prolonged and repeated scuffing. The scuff resistance is dependent not only on the properties of the paper and ink but also on the goods packed. Complete scuff resistance is hardly attainable.

*INK DEFECTS IN OFFSET PRINTING. Anon. Roland Nachrichten, No. 12, May 1959, pp. 30-3 (in German); Printing Abstracts 14, No. 10, October 1959, Abs. #3354, p. 784. Difficulties in making inks for offset printing have been practically eliminated in the modern ink factory. Hence troubles which arise on the offset machine are nearly always due to the combination of the ink with the paper, ink and printing plate or of ink, damping and an unsuitable adjustment of the machine. The following defects are discussed in detail: Scumming of the ink, 'pearling' of the ink, drying on the rollers, picking, fluffing, sticking of the prints, ink spraying.

*BRUSH AND MACHINE COATED PAPERS IN OFFSET PRINTING. M. Hartmann. Arch. Druck Pap., vol. 96, No. 2, 1959, pp. 168-70, 173-5 (in English and German); Printing Abstracts 14, No. 9, September 1959, Abst. #3056, p. 713. Once art papers with coatings unaffected by water had been developed it became necessary to produce glossy inks for these papers. Cast-coated papers are discussed.

INK MISTING. Stanley H. Southard. The American Ink Maker 36, No. 10, October 1958, pp. 32, 33, 35 (3 pages). "Lomist" new ink is described as greatly reducing misting compared with other inks. Test results are shown, in the form of photographs, of filter discs used to separate mist from large volumes of air pulled through a vacuum cleaner. Reduction in misting allows better housecleaning in the pressroom

EFFECT OF SPEED ON THE PRECISION OF THE TENSILE TEST OF PAPER. T. W. Lashof, C. P. Spring and G. L. Maton. TAPPI 42, No. 9, September 1959, pp. 718-720 (3 pages). A round robin was conducted to determine whether any loss in precision would result using a fast test (5 to 9 sec. to break) rather than a proposed slower test (17 to 25 sec. to break) to determine the tensile strength of paper. The study was made using 40, 50, and 60-lb. multiwall kraft paper, both in the machine and cross directions. Three makes of instruments with three laboratories per instrument were involved. It is concluded that speed within the range studied has negligible effect on both the within and between-laboratory variabilities for this type of paper. Expected higher tensile strengths were obtained with the faster test. A by-product of this study is the conclusion that for shipping sack papers five replications are sufficient for the tensile strength test.

SCANNING ELECTRON MICROSCOPY IN PULP AND PAPER RESEARCH. K.C.A. Smith. Pulp and Paper Magazine of Canada 60, No. 12, December 1959, pp. T366 - T371 (6 pages). The principles of the scanning electron microscope and the potentialities and performance of this instrument applied to the fields of pulp and paper research are briefly described and examined. The new scanning microscope now in use at the Pulp and Paper Research Institute of Canada is described and some of the preliminary results obtained with this instrument are presented.

LITHOGRAPHY - GENERAL

TROUBLES WITH RUNNING SOLIDS. Theodore Makarius. Modern Lithography 26, No. 5, May 1958, pp. 73, 125, 126 (3 pages). In reply to an inquiry for an explanation of causes for greasing and unevenness in printing reverse lettering clean and sharp the author stresses the need for carefully adjusting for minimum even ink flow. Even so, some presses have poorer distribution than others which leads to more critical adjustment being required. The most common mistake consists of attempting to run an excess of ink to make up for a deficiency of pigment strength. In some cases

management may decide to run such a color twice in order to avoid trouble. Unless the ink is made to suit the job a pressman's efforts to reduce it with compound of oil may cause greasing, ink breakdown and dirty dampeners. This in turn may lead to scum drying on non-image areas of the plate when the press is shut down without having immediately gummed the plate. A second inquiry concerns copperized aluminum plates blinding after 30,000 impressions. No trouble was reported in connection with red plates but three black plates were submitted. These gave evidence of several causes of the trouble. Of these, abrasion from accumulated lint on the blanket from the newsprint stock being run, for which frequent blanket washes and replacement of fountain ink is suggested as a remedy. Two plates appeared to show gum cracks caused by gumming the plate with insufficient ink over the image. In conclusion, the author states that there just isn't any procedure for rubbing up a plate. Careful packing must be done to prevent excess wear on local image areas since damage can rarely be repaired.

*PLANOGRAPHIC PRINTING. Brit. Pat. 811,346; appln. 12 June 1956, publ. 2 Apr. 1959, H. M. Patent Office, London (Cb). W. Ritzerfeld and G. Ritzerfeld. From Printing Abstracts, Vol. 14, No. 7, July 1959, Abstr. 2558. A fatty material (e.g. 40% of a heavily thickened linseed oil in combination with 60% of petroleum jelly or wool fat) is applied to the dampening rollers of a lithographic duplicating process. The moistening liquid may be water with the addition of 5 to 15% of a polyalcohol such as glycerine or sorbitol.

STORING OFFSET PLATES CAN BE PROFITABLE -- BUT NOT ALWAYS. Charles W. Latham. Inland and American Printer and Lithographer 144, No. 5, February 1960, pp. 54, 55, 56 (3 pages). Author first points out the relationship of trade customs to plate ownership in the case of reruns. Actual plate storage involves the method of storage (2 are illustrated) keeping properties of the plates, and the bookkeeping involved. The storage and reuse of negatives and flats are discussed in relation to their keeping properties, and the paper work involved. It is pointed out that cost factors should be weighed in making the decision as to whether plates should or should not be stored. The operations involved in preparing a plate for storage are given and discussed.

*FLUORESCENT LITHO INK USED IN RUN-OF-BOOK PUBLICATION IN AMERICA. Anonymous. Printing World, Vol. 164, No. 1, January 7, 1959, page 22; Printing Abstracts, Vol. 14, No. 3, March 1959, page 168. Day-Glo lithographic ink was used in the October issue of the AOPA Pilot. The run went smoothly after a pre-production test which showed that the ink tended to pile up on the blanket. This problem was overcome by using medium coarse-grained deep-etch zinc plates which permitted a smoother, heavier deposit of ink. The fluorescent ink was applied in two impressions, running first with a blue and then with a black on a two-colour offset press. Drying time was 3-4 hours between runs. Ink was used straight out of the can, and it was said that no special cleaning of the press was necessary.

*PRINTING OF CORRUGATED BOARD. U. S. Patent 2,893,320 - Application March 29, 1956. Rexford W. Jones - Assigned to Fort Wayne Corrugated Paper Company. Official Gazette 744, No. 1, July 7, 1959, p. 95. In the process of dry relief offset printing of corrugated board, the steps comprising; contacting an inked dry relief plate against the surface of an offset blanket having an effective surface hardness of about 20-40 durometer to transfer an ink image on said offset blanket and contacting corrugated board against said offset blanket to transfer the ink image thereon to the facing liner of the corrugated board without deleteriously affecting the strength of the corrugated board.

*PRINTING PLATE MOUNTING MEANS. U. S. Patent 2,885,958 - Application October 25, 1954. Thomas H. Johnson - Anthony J. Mueller and Charles B. Crittenden - Assigned to: Harris-Intertype Corporation. Official Gazette 742, No. 2, May 12, 1959, p. 380. The combination with a printing press plate cylinder having a narrow gap in its periphery, a sheet plate carrying a printing image on its outer surface, said cylinder having an inwardly extending transverse cavity communicating with said gap, both ends of said plate extending face to face through said gap into said cavity, means within the cavity for snugly engaging and holding the facing surfaces of the plate together, means for anchoring one plate end in the cavity and moving the second plate end inwardly away from the cylinder surface to tension the plate on the cylinder while maintaining said facing surfaces in contact, the means for moving the second end inwardly comprising an abutment on that end and a shoulder for engaging said abutment which, when moved inwardly, co-acts with the abutment to draw the plate inwardly, said shoulder comprising a portion of a floating transverse bar, the means for engaging the facing surfaces comprises a round oscillatable shaft on a fixed axis adjacent and generally parallel to the bar, said shaft having a flat surface therealong which, when the flat is adjacent the bar, permits lateral floating of the bar, and which, when turned on its axis to present a rounded surface against the bar, presses the bar and thus the facing surfaces into snug engagement.

*ROTARY OFFSET PRINTING MACHINE WITH AUXILIARY OFFSET CYLINDER. U. S. Patent 2,909,117 - Application May 25, 1955. Robert J. Crissy. Official Gazette 747, No. 3, October 20, 1959, p. 610. In a rotary printing press, two cylinders in substantially tangential relationship comprising the printing press, an auxiliary cylinder in substantially tangential relationship with respect to one of the cylinders of the press, said auxiliary cylinder receiving images from areas of the cylinder and transferring the images to other areas of the cylinder, means for feeding sheets to the printing press, first means for effecting the separation of the cylinders comprising the press, and second means for effecting the separation of the auxiliary cylinder and the cylinder of the press which it engages, sheet detecting means, means controlled by the sheet detecting means for conditioning both said first and second means for operation, means for triggering the operation of said first means at a predetermined time in the machine cycle, whereby the cylinders comprising the press will be separated if said first and second means have been previously conditioned for operation, and means for imparting a predetermined series of movements to the auxiliary cylinder during each printing cycle to move the auxiliary cylinder into contact with predetermined areas of said cylinder and to move the auxiliary cylinder out of contact with predetermined areas of said cylinder.

WHEN TO REPLACE EQUIPMENT. William J. Milford. Graphic Arts Monthly 32, No. 2, February 1960, pp. 178, 180, 182 (3 pages). Article consists of a check list of 14 paragraphs of the character of "When thus and so happens, or such a condition has been reached, it is time to _____"

GRAPHIC ARTS - GENERAL

*DEVELOPER FOR ELECTROSTATIC PRINTING. U. S. Patent 2,891,911 - Filed June 6, 1955. E. F. Mayer and V. E. Straughan - Assigned to General Dynamics Corp. Monthly Abstract Bulletin 46, No. 1, January 1960, p. 43. An improved liquid developer is described for rendering an electrostatic latent image visible. The process consists in dispersing a pigment, e.g., carbon, coated with a thermoplastic binder, e.g., polyethylene, in a liquid hydrocarbon having a high electrical resistance, e.g., kerosene, and treating the charged image with this dispersion.

STEREOSCOPICS! Frank Smith. The Lithographer and Offset Printer vol. LV, No. 11, November 1959, pp. 26, 28, 30 (3 pages). Author reports on an American development in stereoscopic printing called the "P.I.D." process. First, stereoscopic methods by Ives and others, especially those using lenticular screens or similar are reviewed. The "P.I.D." process makes use of a thin plastic sheet having 115 part cylindrical lines per inch, hence the sheet can be quite thin. The original photograph is made on specially coated tri-pack color film by a moving camera through a screen. Reproductions can be to exact same size only due to the need for a viewing screen. 4 line diagrams.

*CONTACT TRANSFER FOR XEROGRAPHY. U. S. Patent 2,886,464 - Application August 9, 1955. Warren G. Van Dorn - Assigned to Haloid Xerox Inc. Official Gazette 742, No. 2, May 12, 1959, p. 515. In the xerographic process comprising placing an electrostatic charge on the surface of a photoconductive insulating layer, exposing the electrically charged photo-conductive insulating layer to a pattern of light and shadow to be reproduced to create thereon an electrostatic image corresponding to the pattern of light and shadow, contacting the electrostatic image with electrostatically charged powder particles to create on the photoconductive insulating layer a deposit of powder particles corresponding exactly to the electrostatic image and transferring the powder image in image configuration to a transfer member, the improvement comprising affecting transfer of the powder image by providing a transfer member comprising a base sheet coated with an elastically deformable resinous interlayer overcoated with a resinous material substantially non-tacky at room temperature selected from the group consisting of polyethylene and polyethylene blended with wax, contacting the resin coating of said transfer member with the powder image on a photoconductive insulating layer and pressing said coating and image together to thereby transfer said powder image to said resin coating at substantially room temperature and removing said base member with its coating from contact with said photoconductive layer whereby transfer of the powder particles in image configuration is achieved without the necessity of depositing electrostatic charges on said transfer member, the pressure producing said transfer being substantially less than that needed when the transfer member omits said interlayer.

SELENIUM COATINGS IN THE THICKNESS RANGE 0.2 TO 2.5μ FOR XEROGRAPHY. J. F. McNeil and D. Jolly. The Journal of Photographic Science, Vol. 7, No. 2. Mar.-Apr. 1959, pp. 25-32, 8 pages. Authors' Abstract. The electro-photographic behavior of vitreous selenium coatings of thickness between 0.2 and 2.5μ deposited on cadmium oxide coated glass plates has been examined in respect to charge potential accepted and charge decay both in the dark and on exposure to tungsten light. The sensitometry of such coatings when used in conjunction both with dry powder and with liquid dispersion development techniques has also been studied.

The production of both xerographic and xeroradiographic images on these thin coatings is feasible and such images, although of lower contrast, possess certain advantages over those formed on selenium coatings of normal thickness. For instance they are suitable for transmission viewing and transmission sensitometry and they are practically free from artefacts and hence enable the high intrinsic resolving power of the selenium coating to be utilized to the fullest possible extent. The thinness of the coatings permits them to be removed chemically leaving the fixed image produced by liquid development intact on the base plate. 11 references.

SMUDGEPROOF "CARBON" COPIES. Anon. Modern Plastics 37, No. 4, December 1959, p. 93 (1 page). A new "Carbon" paper, based on a vinyl copolymer, is expected to save American business millions of dollars per year. The new coating contains a pigmented fluid in a series of sponge-like cells. Up to 60 usings are claimed.

*WEB GUIDE. British Patent 815,344. Pat. Abstr. J., 24 June 1959, p. 11; Printing Abstracts 14, No. 10, October 1959, p. 801. A divert bar having eccentric sections whereby adjacent moving webs are both diverted and laterally spaced.

*STATIC ELECTRICITY. P.S.H. Henry and M. Buhler. Ciba Review 11, No. 132, June 1959, pp. 2-29; Printing Abstracts 14, No. 10, October 1959, p. 807. The occurrence and effect of static electricity, theories of generation, remedial measures, including various types of static eliminators and anti-static finishes for textiles, are discussed.

*THE EFFECT OF ANTI-SET-OFF MATERIALS ON HEALTH IN THE PRINTING WORKS. Institut National de Securite. Note no. 172-15-59, 9 Avenue Montaigne, Paris-8e, France; Printing Abstracts 14, No. 10, October 1959, p. 825. The anti-set-off powders consisted of pure sodium (? calcium) carbonate or of casein with small amounts of oxides and carbonates. The sprays consisted of a mixture of gum arabic, alcohol and water. The powders were harmless but the liquids could produce irritation of the nose, throat and eyes and bronchial asthma (due to the gum arabic). Practical measures for reducing the effects are indicated.

FLUORESCENCE AND GRAY CONTENT OF SURFACE COLORS. Ralph M. Evans. Journal of the Optical Society of America 49, No. 11, November 1959, pp. 1049 - 1059 (11 pages). An investigation of the colors in the Munsell 5R plane and an extension of this study to colors produced in a small aperture in a large white illuminated surround have led to the discovery of some interesting and novel relationships. It is found that under these conditions the domain of surface color perception includes the whole of the range from V = 0 to 10 and p_c = 0 to 1.0 and under some conditions more. For a color of a given dominant wavelength there is a locus lying wholly within this space along which lie colors that do not appear to contain gray. If luminance or purity is increased above a point on this line, the sample takes on the appearance characteristic of a fluorescent material. If either is decreased below a point on this line, the color is perceived as having a gray component added to the purely chromatic component in increasing amounts until at p_c = 0, there is no chromatic component perception of the color or at low values of V the sample appears black. Above a point somewhat higher than surround luminance, the appearance of fluorescence ceases and the surface mode changes to the illuminant mode, the saturation of the perceived color decreasing with increasing luminance above this point. An hypothesis is suggested to explain the facts and it is pointed out that more than one kind of "brightness" is necessarily involved.

SMALL-FIELD CHROMATICITY DISCRIMINATION. David L. MacAdam. Journal of the Optical Society of America 49, No. 12, December 1959, pp. 1143 - 1146 (4 pages). The evaluation of the noticeability of chromaticity differences between very small areas is needed in studies of color graininess. In the present work, color-discrimination data for eleven well-selected chromaticities were determined by a single observer using a matching method for fields subtending (a) 3' and (b) 4.4°. The data for the large field agree fairly well with those previously published. The comparable results for the 3' field have been summarized for convenience in the form of a plane uniform chromaticity diagram in which the standard CIE coordinate network is curvilinear. The diagram represents a simplified approximation to the actual results, which would require a curved surface for accurate representation. Nevertheless, the present diagram is suitable for evaluating the large chromaticity differences that are encountered in color graininess and in most other applications of small-field color-discrimination data.

MEASUREMENT OF COLOR RENDERING TOLERANCES. B. H. Crawford. Journal of the Optical Society of America 49, No. 12, December 1959, pp. 1147 - 1158 (12 pages). The color rendering tolerances in different bands of the spectrum of an illuminant

have been measured by direct experiment using several levels of illumination and a variety of test objects, including pictures, foodstuffs, and the human complexion. The spectral bands were contiguous, covering the whole visible spectrum, and their widths were chosen so that they had approximately equal weight from a color rendering point of view. All tolerances were measured in relation to a full radiator reference illuminant, for single bands and also for combinations of bands. With these results it is possible to predict the color rendering performance of an illuminant knowing only the relative energy distribution in its spectrum. Examples are given. In general, the computed performance agrees with practical judgments derived from ordinary use.

NEW PIGMENT-MIXTURE DIAGRAM AND COLOR SYSTEM. Edward Friel. Journal of the Optical Society of America 49, No. 12, December 1959, pp. 1159 - 1168 (10 pages). This paper deals with processes which operate when pigments are combined. Usually it is assumed that one may learn of these processes only by trial and error and that information acquired in this way cannot be imparted to others. From experience as a painter and decorator the writer has long believed otherwise; that is, that these processes are simple enough so that, given a proper method, useful information about them could be organized and presented in a form understandable to any interested person. With this in mind a simple diagram was devised to show general mixture-relationships among red, yellow, and blue pigments and their combinations. Though this was useful to a degree, its limitations were evident, since it did not deal concretely with most pigments in common use. By trial and error, points indicating a selection of pigments were incorporated into the diagram, with the objective that color-mixture relationships among the pigments should be expressed in terms of linear relationships among the points. The advantages of such an arrangement were at once apparent. Using this as a point of departure and drawing from the experience of people inquiring into similar processes operating when colored lights are combined, a new color system was built, consisting of devices and conventions designed to supplement and facilitate use of information so presented. To what degree the pigment positions had been so arranged as to secure the nearest-possible approach to linear color-mixture relations remained for a time unknown. Meanwhile doubt was expressed that it is possible to arrange them so as to provide useful approximations of the relationships involved. Then a new experimental technique was devised. This led to correction of errors in locating the pigment positions and produced evidence that information about color-mixture relationships among pigments can be summarized very well in diagrammatic form. Some features of the color system mentioned are noted. The experiments are described and data presented for review.